

CLAIMS

1. A method for determining a phase transition of a substance,
comprising:
generating a first measuring signal by measuring a substance-directed heat
flow;
5 generating a measuring signal phase-shifted in relation to the first
measuring signal;
determining a difference signal between the first measuring signal and the
phase-shifted measuring signal and
determining the phase transition if a property of the difference signal meets
10 a predetermined condition.
2. A method according to claim 1, wherein the generation of the first
measuring signal comprises:
varying a temperature of a first surface;
15 measuring a heat flow from the substance to the first surface
and wherein the generation of the phase-shifted signal comprises:
varying a temperature of a second surface, which varying is phase-shifted in
relation to the varying of the temperature of the first surface;
measuring a heat flow from the substance to the second surface.
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3. A method according to claim 2, wherein the varying of the
temperature of at least one of the said surfaces comprises:
heating up the surface by means of a heating element located near the
surface;
25 cooling down the surface by means of a cooling element thermally connected
to the surface and located at a distance from the surface.

4. A method according to claim 3, wherein measuring the heat flow comprises: measuring a heat flow from the surface to the cooling element.
5. A method according to claim 3 or 4, wherein the cooling down of the surface comprises:
maintaining at least a part of the cooling element at a constant temperature;
and wherein the heating up of the surface comprises:
varying thermal energy supplied to the surface by the heating element; and
10 wherein the cooling down and heating up of the surface are carried out at least partially simultaneously.
6. A method according to any one of the preceding claims, wherein the phase transition is the transition from the gaseous phase to the liquid phase
15 of the substance.
7. A method according to any one of the preceding claims, wherein the method is used for determining the dew point of a gas.
- 20 8. An apparatus for determining a phase transition of a substance, comprising:
a heat flow meter for measuring a substance-directed heat flow, which heat flow meter has a meter output for delivering a first measuring signal constituting a measure for the value of the measured heat flow;
25 means for generating a phase-shifted measuring signal;
a difference-determining element for determining a difference signal on the basis of the first measuring signal and the phase-shifted measuring signal;
and
means for detecting the phase transition on the basis of the difference
30 signal.

9. An apparatus according to claim 8, comprising:

a first heating element;

a first heat flow meter thermally connected to the first heating element,

5 the means for generating a phase-shifted measuring signal comprising:

a second heat flow meter and

a second heating element thermally connected to the second heat flow

meter, which first and second heating element are connected to a control

circuit which, in use, controls the second heating element in a phase-shifted

10 manner in relation to the first heating element.

10. An apparatus according to claim 8, wherein the means for generating a phase-shifted measuring signal comprise an electronic circuit, which electronic circuit at least comprises:

15 a phase-shifting element connected to an output of the heat flow meter;

a combining element having

a first input connected to an output of the phase-shifting element and

a second input connected to the output of the heat flow meter,

an output to which a difference signal of signals presented to the

20 inputs is provided, wherein one of the inputs is a negative input and

another of the inputs is a positive input;

and which circuit further comprises:

a detection element connected to the output of the combining element for detecting a predetermined property of the difference signal.

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